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THE ENTOPATH NEWS.

Number 13

April 1957

INTRODUCTORY.

The forthcoming visit by Dr. Crooke to Canada on a nine month study tour will still further deplete the editorial staff of Entopath. This may result in a reduction of available matter for publication, but we hope that this will be compensated for by some notes on forest entomology in Canada on his return.

As the field season gets under way, and minor enquiries begin to mount, a plea has come in from the silvicultural section regarding packing of specimen material sent for examination; polythene bags, heat sealed, appear to be the best means of packing, for anything likely to dry up during transit and it would be appreciated if this method were used. It is particularly good in the case of nursery stock, drying of which leads to difficulties in diagnosis. For instance abnormal foliage colours due to nutrient deficiency may alter or disappear when the plant dries, or there may be difficulty in deciding whether roots or tops were first affected.

ANTS IN THE FOREST.

Ants are still in the news; further reports suggesting that they can be a trouble in young conifer plantations. According to one Kent forester, beech too is attacked. The list of affected species now stands as follows - Douglas fir, spruce, Japanese and European larch and beech. At the risk of repeating what has already been said, one can only express surprise that this insect, probably the commonest species in the country and found throughout Great Britain in gardens and cultivated land, should be damaging only to forest plants. One correspondent suggests that the target is water and this certainly does tie in with all observations which so far have come from droughty areas. He describes how an attack starts at the root collar and then proceeds to the leaves, how the actual damage is localised, and says that attacks are not necessarily

fatal. A leaf only may be affected, or it may be a twig, a branch or, of course, the whole tree. He also mentions that an attacked beech leaf is featured by a round "two-zoned brown stain". The nibbling at the root collar seems to be the most characteristic feature of attack though there are exceptions. In the early days of the Commission, for instance, it was noted at Hanover that Sitka and Douglas planted in old disused ant heaps - a favourite choice of planting position owing to the friability of the soil - often died. In such cases no actual physical damage to the plant was noted.

Now that this interesting subject has been aired future observations would be very welcome. If anyone can carry out periodic inspections or find ants actually attacking live plants we would be very glad to hear about it. Specimens of the ants concerned and of plant material would also be of great value.

OAK MILDEW CONTROL.

Last year oak mildew was not particularly serious in nurseries but it still caused considerable losses in height growth of nursery stock. It is said to be more damaging in hot dry summers, and as this season has opened well, a reminder about the disease may be timely in case later weather conditions favour it. A full description and control measures are given in F.C. Leaflet 38, but the following points may be worth reiterating. Early spraying is essential for control. On one year seedlings in late May look out for small cinnamon coloured spots which rapidly turn white. In transplants the fungus may overwinter on dormant buds. Examine the newly flushed shoots for any covered with typical mildew. Either of these symptoms is an indication that spraying should be carried out. Last year a small trial was held of various compounds and it was found that colloidal sulphur gave best results. This tallies with previous experience. The particular sulphur used in the trial was 'Ialine' which includes its own spreading and wetting agents. A common fault when spraying is to fail to cover the under sides of the leaves so that the upper side is fully protected but the lower side is infected and covered with mildew. In such a case the protection is not even partial, the leaf withering just as quickly as an unsprayed one. For this reason it is essential to produce a fine spray using a nozzle which can work close to the ground and be directed upwards on to the under side of the foliage as well as the upper.

Depending on plant growth and weather conditions it may be necessary to spray at intervals of two to three weeks through the season.

THE PINE LOOPER SURVEY.

The April number of 'Entopath' again brings you the results of the annual looper survey. This year, for the first time, the survey has been done solely by conservancy staff, without any help from us. In fact, we can now say that the sampling has become a routine protective measure as in other countries where Pine Looper is a pest. At the time of writing we have received specimens and data from almost all of the 42 units to be sampled this year.

In general we can report very little change or a slight drop in populations throughout the country - with the one big exception of Tentsmuir. You will remember last year we told you that this forest had above average figures. Well, they have taken a jump. The overall forest average has gone from just over 4 pupae/sq.yd. to just over 13, and the highest compartment averages are 49.2, 40.2, 28.6 and 21.4 pupae/sq.yd. This is the kind of population, you will agree we have to take very seriously. Our immediate plans, of course, will be to extend the survey to a full coverage of the area in order to be able to size up the problem properly.

Potentially, pupal counts of this size could produce more than enough larvae to strip any size of pine, but a lot of things can happen to a population between pupa and larva. The next step will be an egg count, and if this shows that the larval population will be great enough to cause serious damage to the trees, then control measures will have to be considered.

This is quite a good example of the value of the survey warning for Bupalus.

SNAILS AS A FOREST PEST.

In a previous issue a brief account was given of our first report in this country of snails causing damage by stripping bark on Robinia pseudacacia. The species in question, Hygromia striolata, though well known as a pest of cultivated strawberries, poppies, violets and primroses has not been thoroughly and systematically investigated. An extensive search through the literature showed that other species of British Land snails were in general scavengers, feeding on leaves, shoots, buds, even rotten beech wood, but not on bark. However in conversation with a molluscan expert mention was made of one instance of bark feeding on lime. With such evidence available it was felt that laboratory experiments and field observations on H. striolata would be necessary in order to confirm bark as either a sporadic or habitual source of food. Certainly the absence of records suggests that as yet British species have not developed bark eating habits to the extent of becoming a serious pest of trees of economic importance. The original article was written with a view to stimulating observation, and reporting of such damage. The response was immediate and interesting.

In this country one observer reported that the stripping of bark by snails had seriously interfered with the growing of Laburnum. Among exotic species, Forest Officers in the Tropics are well aware of the Giant African snail, which during the last one hundred and fifty years has spread from East Africa to the Seychelles, Ceylon, Calcutta, Malaya, China, Japan, and recently (1940) across the Pacific to California. This is again primarily a scavenger, and for this reason is abundant round villages and gardens. But it will eat fruit, flower, leaf, and the bark of a number of trees with serious effects.

Yet another species, Helicella derbentina, which occurs in the Caucasus and Asia Minor, feeds on the leaves, young shoots, and bark causing serious damage to transplants of R. pseudacacia and apricot trees.

It is obvious that in other countries certain species are an established pest not only of leaves, but also of bark. In this country snails are well known as defoliators, but until recently there has been nothing to suggest that they are confirmed and

habitual bark feeders, thereby causing serious damage to tree plantations.

Any further observations which readers may make on snails damaging trees will be welcomed.

DISEASED ASH AT KESTEVEN FOREST.

A puzzling case of injury to P.35 ash has been reported from Kesteven Forest. This takes the form of extensive patches on the stems where the bark is dead or missing. The patches were up to ten feet long and extended up to one third the circumference of the tree but many were much smaller. Some extended from the ground upwards and others occurred remote from the ground. Sections of material showed that any one injury occurred in the same year but that the damage as a whole extended over a range of years, some going back to 1949. The variations in age and the presence of bark seemed to weigh against mechanical injury such as felling grazes and in any case some injuries were later than the last thinning. Frost damage at first seemed a possibility but the lesions occurred on all aspects of the stems and no particular year was involved. Also sections under the microscope gave no sign of a frost ring or any other abnormality. Rodent damage of course could not be the cause since the dead bark was often still present.

When material was examined for fungi, the only one of interest was found to be an ascomycete Hysteriographium fraxini. This is one of the many forest fungi the importance of which is almost unknown. A German reference describes it as causing sunken plates of dead bark on ash. An English reference says that it has not been recorded in Britain since 1927.

Since an injury is completed apparently in a single season, the fungus would have to be an exceedingly rapid bark killer to cause the Kesteven damage and this throws some doubt on the suggestion that it is solely responsible. Yet there is an analogy in the case of Phomopsis cankers on larch where the fungus persists for only one season and yet can cause cankers up to three or four feet in length.

At present, no other likely explanation of the dead bark has come up and the role of Hysteriographium requires further elucidation. Any further progress with the rather interesting case will of course be reported in Entopath.

CRONARTIUM RIBICOLA.

Among the many other signs of this early season was the production of blisters on P. strobus by Cronartium in December. As far as infection then was concerned, the fungus was wasting its sporidia upon the winter air, for the currants did not oblige by flushing in December. Blister production went on steadily, however, and the currants flushed in March. Thus there is little likelihood of the earliness of the season knocking the infection cycle out of phase as the summer production of spores on the currant can develop abundantly from only a few infections from the pine.

FOMES ANNOSUS ON RED OAK.

Fomes is generally associated with conifers but there is quite a large number of records of it on broadleaved hosts. It has been recorded on beech, sycamore, oak, birch, poplar, hawthorn and even on broom, bracken and heather. On the broad-leaved tree hosts it has acted as a killing agent on well grown trees up to fifty years of age. In all cases where beech, oak, poplar or sycamore are concerned the fungus seems to have spread from conifer stumps resulting either from a previous crop or from thinnings in a mixture. On birch and hawthorn, however, the presence of conifer stumps did not seem a necessary factor in attack.

Recently a bad case of red oak attacked by Fomes was seen in a fire belt in East Anglia. The crop was a mixture of conifers and hardwoods and coniferous stumps existed on the ground. Probably the fungus was attacking the oak from such stumps. The

red oak appeared to suffer more than the other hardwoods in the mixture. These included, beech, birch, poplar and Laburnum. This is the second case of Fomes attacking red oak in East Anglia and causing heavy losses, and there are also similar reports from the Continent. One of these concerns a fifty year old plantation. This seems to postulate a low degree of resistance in red oak towards Fomes making it probably one of the most susceptible hardwoods. The species, therefore, should be used with discretion if there is a risk of Fomes.

'POCK MARKS' ON BARK.

An unsolved problem which has existed for several years is the phenomenon referred to for want of a better description as 'pock marks'. These take the form of small hollows or indentations in the bark of broadleaved trees. They are about a quarter of an inch in diameter and are arranged in straight lines which contain three or four of the marks. A stem may have hundreds of them. Sections show that they extend down to the cambium and that sometimes a small area of cambium has been killed leaving a black spot on the wood beneath. They were first found on pole sized oak in the Forest of Dean. On these oak there also existed fairly large cankers and it was thought that there was some connection between the cankers and the pock marks. This was never proved however, and the connection is doubtful. Then pock marks were found on Sallow also from the Dean. Two years ago a timber merchant from the west country sent in a specimen of lime showing identical markings with a request for an explanation. This, of course, unfortunately could not be supplied. Lastly specimens of Nothofagus procera from Haldon Forest have been found to show the markings. The pock marks have been shown to pathologists, entomologists, wild life experts, ornithologists, physiologists and botanists. No one will admit responsibility and the explanation is as remote as it was five years ago when the first report was made. "There are more things in heaven and earth ....."

REMINDER!!!

Specimens and Descriptions to be sent direct to either the Pathologist or the Entomologist, the minute preferably being in the package with the material.

A copy of the minute and all subsequent correspondence to go via your Conservator.

Pathologist	:	FOREST RESEARCH STATION,
	:	ALICE HOLT LODGE,
Entomologist	:	WRECCLESHAM,
	:	FARNHAM, SURREY.